

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

NETLIST, INC.,

Plaintiff,

VS.

MICRON TECHNOLOGY, INC.,
MICRON SEMICONDUCTOR
PRODUCTS INC., MICRON
TECHNOLOGY TEXAS LLC,

Defendants.

Case No. 2:22-CV-203-JRG

JURY TRIAL DEMANDED

**PLAINTIFF NETLIST, INC.'S MOTION TO COMPEL MICRON DEFENDANTS TO
PRODUCE DOCUMENTS RELATING TO THE ACCUSED FEATURES OF
MICRON'S PRODUCTS**

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Plaintiff Netlist, Inc. (“Netlist”) respectfully moves the Court to compel Micron to produce the following categories of documents in Micron’s possession, custody, or control, which are relevant to show the technical benefits conferred by Netlist’s asserted patents as well as willful infringement:

1. Documents related to improvements in power efficiency that are attributable to on-module voltage regulation (“VR-on-DIMM”) on Micron’s DDR5 DIMMs.
2. Documents related to Micron’s decision to implement VR-on-DIMM on Micron’s DDR5 DIMMs, including the underlying analyses, simulations, and factual data regarding its adoption of VR-on-DIMM and support for the adoption of VR-on-DIMM at JEDEC.
3. Documents related to Micron’s decisions to use [REDACTED] including alternatives considered, modeling performed, references consulted, and the reasons [REDACTED]
4. Documents related to any comparisons of the interconnect structures of Micron’s HBM products to the HBM products of its competitors, such as SK hynix and Samsung.

Netlist has repeatedly followed up with Micron for these relevant documents. *See* Ex. 1.

I. FACTUAL BACKGROUND

Netlist asserts that Micron’s DDR5 DIMMs¹ infringe Netlist’s Patent No. 11,016,918 (the “’918 patent”) and No. 11,232,054 (the “’054 patent”) and Micron’s HBM products² infringe Netlist’s Patent No. 8,787,060 (the “’060 patent”) and No. 9,318,160 (the “’160 patent”).

The ’918 and ’054 patents are directed to “Voltage Regulation on the Module” features of Micron’s accused DDR5 DIMMs. As Micron states, the VR-on-DIMM feature is new to DDR5 DIMMs and provides several technical benefits:

¹ The accused DDR5 DIMMs include DDR5 RDIMMs, LRDIMMs, SODIMMs, UDIMMs, and other accused products identified in Netlist’s infringement contentions.

² Micron’s accused HBM products include HBM2, HBM2E, HBM3, HBMNext, and other accused products identified in Netlist’s infringement contentions.

Micron Technical Brief

Voltage Regulation on the Module

DDR5 modules introduce local voltage regulation on the module. The voltage regulation is achieved by a power management integrated circuit (PMIC). The PMIC provides the brains of a smart voltage regulation system for the DDR5 DIMM, enabling configurability of voltage ramps and levels as well as current monitoring. Power management has been historically done on the motherboard. The introduction of PMICs allows additional features like threshold protection, error injection capabilities, programmable power on sequence, and power management features. The presence of the PMIC on the module enables better power regulation and reduces complexity of the motherboard design by reducing the scope of DRAM power delivery network (PDN) management.

See Micron Technical Brief, *Micron DDR5: Key Module Features*.³

The '060 and '160 patents disclose systems and methods for optimizing a load in a memory package featuring a control die, array dies, and numerous die interconnects. In contrast to traditional DDR modules in which different wire-bonded DRAM devices are packaged individually or as DDPs (dual-die packages where two DRAM chips are connected via, e.g., double-sided adhesives) and then assembled on a common printed circuit board, the inventions of the '060 and '160 patents are directed to vertically stacked memory packages via through-silicon vias (TSVs) where the memory packages have multiple die interconnects in electrical communication with some, but not all, of the array dies.

After Netlist served its infringement contentions, Micron released a newer generation of HBM3 products, HBM3 Gen2, on July 26.⁴ Netlist's infringement contentions identified as accused products for the '060/'160 patents "Micron's HBM2, HBM2E, HBM3, HBMNext and newer products with 8 or more stacked DRAM dies products, and any other Micron memory products that

³ https://media-www.micron.com/-/media/client/global/documents/products/technical-marketing-brief/ddr5_key_module_features_tech_brief.pdf?la=zh-tw&rev=f3ca96bed7d9427ba72b4c192dfac56

⁴ <https://investors.micron.com/news-releases/news-release-details/micron-delivers-industrys-fastest-highest-capacity-hbm-advance>.

operate the same way in all material aspects.” Dkt. 57-2 at 5. Among other features, Micron identifies “improved power efficiency” of the HBM Gen2 products “because of Micron advancements such as doubling of the through-silicon vias (TSVs) over competitive HBM3 offerings.”⁵

Netlist has repeatedly sought analyses, testing, simulations, and other data relating to Micron’s decision to adopt VR-on-DIMM in its DDR5 DIMMs and the power efficiency achieved by such features. Netlist also asked Micron to identify the same for [REDACTED]

[REDACTED]. For example, on November 11, 2022, Netlist asked Micron to produce:

Topic 48: All studies, analyses, reports, or other documents in Micron’s possession, control, or custody related to implementing the power management circuitry (including voltage regulation and monitoring circuitry) on the module board instead of on the motherboard in Micron Accused DDR5 DIMMs, including simulations performed by Micron and/or third parties.

Topic 53: All documents related to Micron’s decision to implement the power management circuitry (including voltage regulation and monitoring circuitry) on the module board instead of on the motherboard in Micron Accused DDR5 DIMMs, including when such features were first included, what alternatives were/are available, why Micron includes this feature in any Micron Accused DDR5 DIMMs, and who was involved in the decision making to include these features.

Topic 64: Documents related to JEDEC discussions regarding implementing the power management circuitry on the module board instead of on the motherboard in DDR5 DIMMs, including the alternatives discussed.

Topic 68: Documents sufficient to fully describe the HBM layout, interconnections, and signaling in Micron Accused HBM Products, including, but not limited, to documents related to: . . . (4) how Micron Accused HBM Products electrically isolate or reduce the load presented by the die interconnects (e.g., TSVs).

Topic 115: Documents sufficient to describe Micron’s decision to incorporate the power management and voltage regulation modules onto the DDR5 modules’ printed circuit boards.

Topic 70: Documents sufficient to fully describe all testing (and results of that testing) Micron did or commissioned others to do to ensure proper communication of data, control, and address signals to the control die (e.g., buffer die or logic die) and the DRAM dies in Micron Accused HBM Products.

Topic 117: Studies and evaluations performed by Micron or third parties on whether TSVs for signals should be selectively connected to only selected drivers in a selected subset of

⁵ *Id.*

DRAM chips or to be connected to all DRAM chips.

Netlist subsequently followed up on these requests on July 31, 2023. *See* Ex. 1 at 4. Netlist followed up again on August 4, and August 8. *Id.* To date, Micron has not committed to producing the requested documents at a date certain and has ignored Netlist's requests for a lead/local meet and confer on this issue until Netlist followed up multiple times and shared its draft motion to compel with Micron on August 8, 2023. Micron has not disputed the relevance of the requested documents.

II. ARGUMENT

Under Federal Rule of Civil Procedure 26(b)(1), parties "may obtain discovery regarding any nonprivileged matter that is relevant to any party's claim or defense." Fed. R. Civ. P. 26(b)(1).

A. Micron Must Produce Items 1-5 Regarding the Operation and Technical Benefits of Micron's Accused DDR5 and HBM Products as well as Documents Relating to Micron's Determination to Adopt the Patented Features

Items 1-5 ask Micron to produce documents relevant to show the benefits conferred by the accused features adopted in Micron's DDR5 DIMMs and HBM products, as well as documents demonstrating Micron's decisions to adopt these features. These requested documents are relevant to support Netlist's damages calculation. *See Georgia-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (considering the "the utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results" and "[t]he nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention"); *see also Wapp Tech Ltd. P'ship v. Wells Fargo Bank, N.A.*, 2022 WL 2784468, at *1 (E.D. Tex. June 28, 2022) (granting motion to compel Wells Fargo defendants to produce "documents and data that pertain to the features of Wells Fargo's mobile banking application that is developed and tested through its allegedly infringing activities, and user transactions (*e.g.*, check deposits, transfers, balance inquiries, etc.) performed on the mobile banking application"). The requested documents relating to Micron's decision to adopt the accused features are further relevant not only to Netlist's damages claims but also to show customer demand

of the patented products, as well as Micron's willful infringement and copying.

Indeed, Micron does not dispute the relevance of these requested documents. There is also no dispute that Micron has possession of the requested documents. Micron's own marketing materials indicate that Micron believes the use of on-module PMICs for voltage regulation increases the power efficiency of Micron's DDR5 products:

[REDACTED]

MICNL203_00072178 at MICNL203_00072182 (produced on August 3, 2023) (emphasis added).

Micron further explains that the use of an on-module PMIC can lower overall system costs:

[REDACTED]

MICNL203_00072317 at MICNL203_00072318 (produced on August 3, 2023). As such, Micron must produce all testing, simulation, or other documents showing the improvements in power efficiency attributable to VR-on-DIMM or PMICs used in Micron's DDR5 products, and documents related to Micron's decision to implement VR-on-DIMM.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] as well as any studies, analyses, or testing Micron conducted comparing its HBM products to those of Micron's competitors.

B. Micron's Delay and Refusal to Engage in a Good-Faith Meet and Confer Waste Judicial Resources

As detailed above, Netlist has been actively seeking discovery from Micron since the beginning of this Action. *Supra* at 3-4. On July 31, 2023, Netlist followed up with Micron immediately (in five days) after [REDACTED]

[REDACTED] Netlist also reached out to Micron's counsel again on August 4 and August 8. Micron simply ignored these emails. Although Micron stated on August 7 that it was still investigating these issues, it could not provide a date certain of the document production or otherwise commit to fully addressing the issues raised in Netlist's emails. Micron also refused to respond to Netlist's repeated invites for a meet and confer until Netlist sent Micron a draft motion to compel. As this Court is well aware of, this is not a one-time incident—it has been Micron's consistent practice to delay discovery and refuse to engage in a good faith meet-and-confer with Netlist throughout this Action. Micron's improper discovery delay tactic has wasted significant resources of Netlist and more importantly has wasted the judicial resources.

III. CONCLUSION

For the reasons discussed above, Netlist's motion to compel should be granted.

Dated: August 9, 2023

Respectfully submitted,

/s/ Jason G. Sheasby

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CERTIFICATE OF SERVICE

I hereby certify that, on August 9, 2023, a copy of the foregoing and the attachment thereto were electronically served to all counsel of record.

/s/ Yanan Zhao
Yanan Zhao

CERTIFICATE OF AUTHORIZATION TO FILE UNDER SEAL

I hereby certify that the foregoing document and exhibits attached hereto are authorized to be filed under seal pursuant to the Protective Order entered in this Case.

/s/ Yanan Zhao
Yanan Zhao

CERTIFICATE OF CONFERENCE

I hereby certify that on July 31, 2023, counsel for Netlist reached out regarding the categories of documents that Netlist believed to be missing from Micron's document production to date. Ex. 1 at 4. Netlist again reached out on August 4, 2023, asking Micron to confirm that it intended to remedy these deficiencies, and asking that, in the alternative, Micron identify times that it was available for a lead-local meet and confer. *Id.* at 3-4. Netlist followed up again on August 8, 2023, sent Micron a draft of this Motion, and asked Micron to identify its availability for a lead-local meet and confer. The parties met and conferred on August 9, 2023. *Id.* at 2-3. The parties are at an impasse because Micron's lead counsel did not attend the meet and confer and Micron refused to produce documents that can fully address the deficiencies raised in this Motion.

/s/ Jason Sheasby
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